

ENHANCING THE APPLICATION OF EFFECTIVE MALARIA INTERVENTIONS IN AFRICA THROUGH TRAINING

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Abstract. Africa bears more than 90% of the entire global malaria disease burden. Surprisingly, even with the current renewed interest in malaria prevention and control and the enabling environment resulting from the Roll Back Malaria initiative and the political commitment made by the African Presidents at the Abuja Summit, there are still no significant initiatives for strengthening capacity for malaria control through training within the African continent itself. The Center for Enhancement of Effective Malaria Interventions (CEEMI) has been established in Dar es Salaam, Tanzania for results-oriented training. It is intended to provide the needed skills for identifying and solving malaria control problems and providing incentives to malaria control workers in their work performance. The intention is to produce implementers with leadership skills for planning and managing malaria control activities and who can use strategic thinking in improving their work performance. To sustain political commitment and support and to sensitize the community on malaria issues, the CEEMI, in collaboration with the Ministry of Health (National Malaria Control Program), the Institute of Journalism and Mass Communication of the University of Dar es Salaam, and the Commonwealth Broadcasting Association have already conducted malaria seminars for Tanzanian Members of Parliament and journalists from Kenya, Malawi, Tanzania, and Uganda. Additionally, a diploma course in health communication is being developed for journalists and for the same purpose. Also being developed is a training module for "Council Malaria Focal Person." This is aimed at complementing the Roll Back Malaria initiative to meet the Abuja targets of reducing morbidity and mortality due to malaria by 50% by 2010.

BACKGROUND AND RATIONALE

The need for reducing the burden of malaria in Africa is urgent and has been given high political support by African heads of states at the Abuja Summit in April 2000 (Abuja declaration, unpublished document). The commitments made at the Abuja Summit and the Roll Back Malaria target of halving the malaria burden by 2010 (Roll Back Malaria Strategic Plan for Capacity Development, unpublished document) have rejuvenated the global and regional efforts for malaria control. However, the targets will not be met until governments honor their pledges, sufficient funds are generated at a global level, and malaria control activities at district, country, and regional levels are strengthened sufficiently to be able to implement effective malaria control interventions. Additionally, it would serve a useful and justifiable purpose to establish and conduct training activities in areas where malaria is endemic. It was in an endeavor to satisfy these requirements that the Center for Enhancement of Effective Malaria Interventions (CEEMI) was established in Dar es Salaam, Tanzania (CEEMI, unpublished document).

With decentralization of health care services, it is extremely difficult for some countries to effectively and sustainably address malaria control issues. At the level of implementers and leadership, there is shortage of people with skills and time to provide necessary inputs to technical and operational decisions on malaria action. Where capacity exists, it is not always used to the best effect. Current training lacks continued support and follow up (mentorship) of the trainees and is not geared towards solving implementation problems. Often, trained staff engage in activities other than malaria prevention and control. This is attributed to misallocation or lack of motivation to undertake malaria control activities. Additionally, current training is centered on career advancement and personal gains, rather than capacity strengthening at the district, national, or regional levels. It produces certificate holders and not committed leaders or implementers.

In 2001, the Bill & Melinda Gates Foundation awarded funds to the London School of Hygiene and Tropical Medi-

cine and her partners, namely, the Liverpool School of Tropical Medicine, the Danish Bilharziasis Laboratory (Charlottenlund, Denmark), and the Center for Medical Parasitology (Copenhagen, Denmark) from the "north" and to the School of Public Health of the University of Ghana (Legon, Ghana), the College of Medicine of the University of Malawi (Blantyre, Malawi), the National Institute for Medical Research (NIMR) in Tanzania, the Kilimanjaro Christian Medical College (Moshi, Tanzania), and Medical Research Council Laboratories in The Gambia from the "south." Nearly all of the northern partners already had strong collaborative links in research or training links with the four southern partners. This was the initial step leading to the birth of the Gates Malaria Partnership. The key roles of the partnership are to strengthen research capabilities and to augment existing capacity through establishment of training centers in the African-partner countries where malaria is endemic, and to develop mechanisms for transferring knowledge strategies related to malaria control into action. While the London School of Hygiene and Tropical Medicine and the other northern partners remain in control of the research and Ph.D training portfolios, the southern partners are charged with establishment and sustainability of the CEEMI and sister centers in Ghana, Malawi, and The Gambia.

AIMS OF THE TRAINING COMPONENT OF THE GATES MALARIA PARTNERSHIP

There are four aims of this partnership:

- To develop innovative multi-disciplinary training courses responsive to identified training needs.
- To provide facilities for the enhancement of existing training programs, both formal and informal.
- To develop and improve skills, knowledge, and attitudes of those involved in advocacy, control, prevention, and management of malaria.
- To use effective procedures for reviewing, monitoring, and

evaluating whether the training delivered has fulfilled its objectives and had the expected impact on malaria control.

Institutionalized malaria training in Africa is long overdue and insofar as this gap is not filled, malaria control capacities cannot be developed in a sustainable manner. Here, the word capacity is defined as “ability of individuals, organizations or systems to perform appropriate functions effectively, efficiently and sustainably” (Milén A, *What Do We Know about Capacity Building?*, unpublished document). Capacity strengthening definitions emphasize the continuing process of the strengthening of abilities to perform core functions, solve problems, define and achieve objectives, and understand and deal with development needs. Capacity strengthening programs consist essentially of three phases. The phases are interlinked and overlap to form a continuous cycle. The first phase, “Needs assessment” for capacity strengthening is a basis for designing a strategic plan. Capacity gaps are identified by first defining the essential capacities at individual, team, organization, and system levels for achievement of policy or organizational or program goals and objectives. Assessment of existing capacities is then compared with future needs.

In the second phase, “Strategies and actions” in capacity building are tailor-made for each situation on the basis of identification of capacity gaps. Since root causes for capacity gaps occur usually at different levels, several types of activities may be required. Some may be more conventional such as workshops, courses, technical assistance, but they need to be planned in a broader context than before. Although, at the level of implementers, gaps are more obvious because of their role as service providers, training should also focus on leadership development.

The third phase, “Monitoring and evaluation” has been largely neglected and is now only emerging. It is important to focus on the motivation for the evaluation: the capacity strengthening process itself, the program management process, or donor agency reporting needs.

Here, lack of capacity is viewed as the failure to select from among available interventions (priority setting), plan and execute the interventions effectively, and to ensure their integration within the routine health services. The challenge of making the preventive programs respond to science, which has been discussed recently in relation to malaria in pregnancy,¹ is equally applicable to all malaria interventions. Indeed, preventive measures such as indoor residual spraying, intermittent preventive treatment in pregnancy, and insecticide-treated nets (ITNs) have been available for quite some time, and new approaches²⁻⁴ such as anemia prevention using intermittent preventive treatment^{5,6} are under evaluation. Yet it is clear that sufficient money is a stumbling block, since malaria endemic countries are too poor to be able to solve the problem alone. However, even if governments honored their pledges and there was good international support, the results will not be satisfactory in terms of impact and future sustainability without there being strong local capacities to effectively implement the required interventions. It requires the generation and maintenance of such capacities on a long-term basis.

A detailed description of the Tanzanian Center is provided here to highlight its uniqueness and the innovative training approaches that are expected to be applied to ensure that

capacities for malaria prevention and control are effectively enhanced. The vision of the center is to develop and promote excellence in the effective application of current malaria prevention and control knowledge and tools for the purpose of reducing and eventually eliminating the burden of malaria disease at district, national, and regional levels. Its mission is to reduce significantly and eventually eliminate malaria disease burden through the enhancement of malaria prevention and control interventions at district, national and regional levels.

THE CENTER'S SPECIFIC OBJECTIVES

The Centers has eight specific objectives:

- To train those responsible for planning and managing malaria control activities to develop skills for identifying priority problems for malaria disease prevention and control at district, national, and regional levels.
- To train health workers and planners to develop skills for allocating and utilizing available resources, knowledge, and tools to solve the priority malaria prevention and control problems using evidence-based strategies.
- To support and strengthen capacities for monitoring performance and outputs of malaria prevention and control interventions.
- To support and strengthen capacities for developing new knowledge and tools for malaria prevention and control.
- To provide resources and skills for targeted information dissemination.
- To support and promote effective policies and the revision of malaria prevention and control policies on the basis of new information.
- To promote community participation in the generation and use of evidence-based interventions for malaria prevention and control.
- To promote, support and strengthen the first seven objectives through public and private partnership.

It will act as a resource center for coordinating and supporting innovations in training for malaria at district, national, and regional levels. It will therefore provide tailored courses on how to choose and implement effective malaria interventions targeted at the district, national, and regional implementers. Additionally, courses on policy development and change applying current evidence will also be provided. Skills to evaluate malaria interventions once they are introduced and how to provide the necessary inputs and changes to make the intervention successful will be developed. The center will promote and enhance the conduct of operational research in the process of introducing and evaluating malaria-control activities.

As a resource center, it will provide documentation and access to information on effective malaria interventions, creating networks with similar centers to facilitate exchange of information. It will therefore act as a forum for exchange of information on malaria control issues.

CURRENT TRAINING APPROACHES

The Center recognizes that currently there are many forms of malaria training being carried out at district, national, and

regional levels. However, there is a paucity of information on institutionalized malaria-focused training offered in Africa (Biomedical Research and Training Institute, Harare, Zimbabwe, unpublished document) and where available, insufficient weight is given to malaria, although it is responsible for a huge disease burden. Critical analysis of the current forms of training shows the following:

- Recruitment for training is not often demand driven but geared to satisfy individual needs mainly for promotion at work places.
- Monitoring or follow-up to ensure individuals use the skills gained in the course of training is either weak or non-existent.

NOVEL TRAINING APPROACH ADVOCATED BY THE CEEMI

The novelty of this Center's training approach is that prospective trainees will be required to define their work before they report for initial training. Taking an example of a trainee from one of the districts in Tanzania, the trainee will be expected to have developed an outline of his or her proposal, which should have received input from his or her Council Health Management Team (CHMT) and the relevant zonal training center (ZTC). Additionally, the proposal should preferably be an integral part of the overall Comprehensive Council Health Plan (CCHP). This is necessarily so because otherwise it becomes difficult to reintegrate the trainee upon completion of the proposed training. Also, if the proposal receives input from the district and or the ZTC, it becomes easier for the candidate to find a suitable supervisor/mentor from his or her original place of work. In the course of the training, the trainee continues to develop a good proposal aiming at making some improvements in terms of outcome in his or her current work. Therefore, the entire process of training becomes more focused and geared towards solving problems familiar to the trainee. Theoretical training is followed by practical training whereby the trainee is facilitated to go back and implement his or her project, collect data, and evaluate the outcome under the guidance and supervision of a supervisor at the ZTC and CHMT.

A certificate of successful completion will only be issued once it has been demonstrated that the trainee has achieved the objectives of his or her intended project. An additional advantage of this approach is that the trainee continues to train and work by contributing to the CCHP. Upon completion of the training, the CHMT as well as the trainee benefit, and the candidate's training experiences enables him or her to remain as an important asset to the district. Any subsequent council health plan of action is more likely to use his or her expertise than if the CHMT or ZTC had not provided input in relation to the training, which is turn related to the malaria prevention and control in the associated district. The entire process would be geared towards capacity strengthening at the trainee's place of work.

With this kind of training approach whereby the trainee's proposal is a reflection of the CCHP, it is easier to formulate modules aimed at offering technical assistance to the ex-trainees through distance learning via ZTCs, which could act as hubs for disseminating information to the districts in their

respective catchments. The entire process of recruitment and training is summarized in Figure 1.

The call for applications would be disseminated through the Center's website, scientific journals, newsletters, bulletins, newspapers, and e-mails to ZTCs and CHMTs, depending on the level of the training to be offered. Selection of suitable candidates would be based on academic qualifications, a sound proposal outline with input from the relevant body (CHMT, ZTC, or NMCP in the case of National or Regional training programs), a recommendation from home institution or body (as above), and availability of local supervisor at the CHMT, ZTC, or NMCP, etc. Theory and practical training would take place at CEEMI. However, at times it may become necessary for the trainees to be attached to the partner institutions of CEEMI. Proposals will continue to be developed as the trainees undertake theory and practical training while at CEEMI. More practical work entailing field research will be undertaken by individual candidates at their respective places of work, and under the supervision of their local supervisors, with occasional visits from CEEMI staff. Data analysis, final report writing, and submission would be carried out at CEEMI. Graduation would be the last step following final evaluation, which would take the different phases of the training process into consideration.

The nature of the training will be demand driven and result oriented in relation to the objectives of the Roll Back Malaria initiative, the priorities of the National Malaria Control Program (NMCP), and the districts or region from where the potential candidates are recruited. However, the initial modules are expected to target implementers and leaders or managers involved in malaria prevention and control activities. One of these training programs being developed is the training of council malaria focal persons. This is deemed necessary

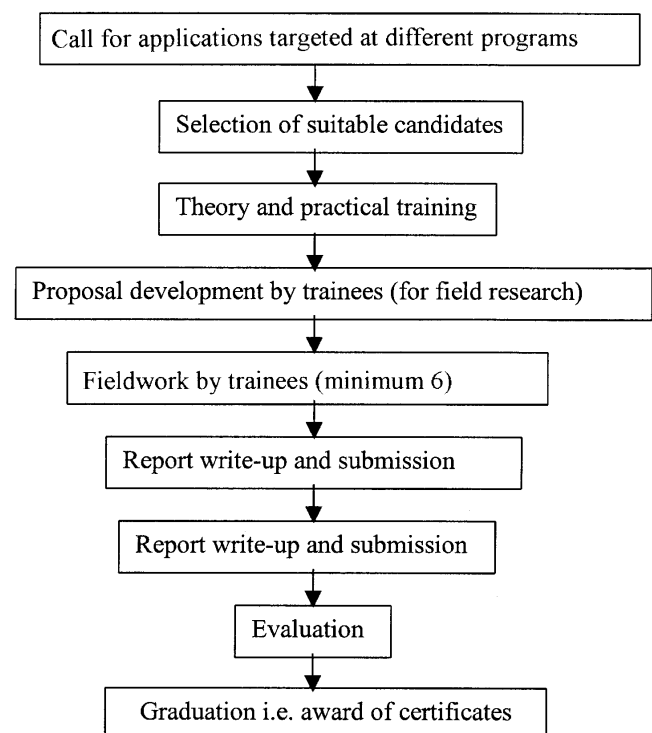


FIGURE 1. Training approach at the Center for Enhancement of Effective Malaria Interventions in Tanzania.

to meet targets of the Abuja declaration. The above training will go hand in hand with sensitization and advocacy campaigns, which have already been initiated by CEEMI and partners.

Delivery of training will involve co-opting of trainers from other partner institutions of CEEMI depending on the needs of a particular course or training module. It therefore requires maintenance of a constantly updated inventory of capacities in the different local and regional institutions. This process is already in progress.

This approach is believed to be efficient and less costly to sustain because the trainers are used permanently elsewhere. However, the drawback is that such trainers may not always be available and proper timing will be needed to have them onboard. Careful analysis has to be done to determine the minimum essential capacity that the center will require on permanent employment basis to meet its obligations and the expectations of stakeholders. It is therefore expected that with the establishment of long-term programs including distance learners, there will be a need to use at least one trainer per program or per several programs depending on their resourcefulness and broadness.

POTENTIAL COLLABORATORS: THE NMCP

The NMCP is one of the major allies of the CEEMI and it is believed that the center is basically there to promote and carry out training activities on behalf of the NMCP, particularly by strengthening capacity for improved malaria prevention and control at the district and national levels. It is appreciated that in its present status, without being involved in malaria training and research, the latter cannot adequately implement malaria control activities. For the training center to implement training programs on behalf of the NMCP, the objectives of the CEEMI have to be in line with those of the NMCP. As such, it is important to incorporate priorities and strategies of the NMCP in the strategic planning of the training center.

The ultimate goal of the NMCP National Malaria Medium-Term Strategy Plan (NMMTSP) (Ministry of Health, Dar es Salaam, unpublished document) is to reduce malaria to a level where it is no longer a major public health problem and obstacle to socioeconomic development. The general objective is to prevent malaria-related mortality and to reduce morbidity due to malaria by 25% by the year 2007 and 50% by the year 2010. The main focal areas of the NMMTSP are the following:

- Case management to ensure early diagnosis and treatment at all levels.
- Vector control through the use of ITNs.
- Prevention of malaria in pregnancy.
- Epidemic preparedness, prevention, and containment.

Therefore, training programs developed by the CEEMI have to focus on the priorities of the NMCP and have to be adjusted from time to time in keeping with corresponding changes in the strategic plan on the NMCP.

This brings about the second point on the novelty of the center, which is the involvement of the NMCP in the training programs to ensure their integration in the health system. Close collaboration between the NMCP, CEEMI, and the

NIMR research community will be enhanced by locating the NMCP within the NIMR premises and sharing the same roof with the training center. This arrangement will not only facilitate use of research to reform policies, but also create demand for research from policy, i.e., a two-way traffic of information. This interaction between researchers and malaria control program implementers will bring about constant exchange of ideas and knowledge. To augment this interaction further, there will be monthly seminars, which will involve other stakeholders beyond the Ministry of Health. The relocation of the NMCP and sharing of facilities between CEEMI and the NMCP has been made possible by financial input from Department for International Development of the London School of Hygiene and Tropical Medicine.

OTHER PARTNERS OF THE CEEMI

The Center will collaborate closely with the local training institutions such as universities, non-government offices, bilateral and multilateral organizations, etc. Northern partner institutions will also feature prominently in the delivery of training, and at the level of districts, the center will work closely with ZTCs of the Ministry of Health.

By taking advantage of the expertise that exists among CEEMI's partners, there will be a minimal need for full-time management capacity at the center. During this initial stage, the center has a Director, Deputy Director, and support staff (an Administrator, Secretary, a Driver, and an Office Assistant). The aim is to maintain minimal, but effective, level of staff and the use of efficient methods in training. Recruitment of trainers will strictly be on the basis of activity demands. Currently, there is already strong need for the recruitment of two trainers with expertise in training methodology. Another area of demand is that of distance learning, which will require constant monitoring, update, and maintenance.

THE CHALLENGES AHEAD

There are four main challenges for the CEEMI:

- How to maintain the infrastructure and equipment.
- How to develop high profile training and to be able to attract trainees, thus creating a satisfied and sustainable market.
- How to ensure innovation in the training style.
- Be able to actually reduce the malaria burden in the countries of interest.

These challenges will be met through the application of the center's strategic plan, which is in line with that of the National Malaria Medium-Term Strategic Plan (2002–2007) and is expected to have an annual rolling plan of action. The training strategies of the CEEMI have two components, institutional strengthening strategies and malaria training capacity strengthening.

INSTITUTIONAL STRENGTHENING STRATEGIES

There are six institutional strengthening strategies:

- Maintaining minimal but effective number of personnel.
- Contributions of partner institutions to core funding.

- Involving partner institutions in training based on their comparative advantages.
- Networking locally, regionally, and internationally.
- Developing collaborative training activities with the other African training centers.
- Hiring at training premises and facilities.

MALARIA TRAINING STRATEGIES

These training strategies include:

- Improving malaria case management.
- Enhancing vector control through the use of ITNs.
- Preventing malaria during pregnancy.
- Strengthening capacities for epidemic preparedness and prevention.
- Strengthening rational decisions through operational research promoting positive health practices.
- Strengthening monitoring and evaluation capacities.

CONCLUSIONS

Malaria control is a major challenge to African countries south of the Sahara, where 90% of the global malaria cases and deaths occur.⁷ The same countries are forced to spend more than two billion US dollars annually on malaria, draining much of the resources, which could otherwise be used for development. Malaria is, therefore, a major cause of poverty in Africa south of the Sahara, and its control will be a major achievement towards reducing and eventually eliminating poverty from the continent. Despite the magnitude of this burden of malaria, and in the wake of renewed interest in malaria prevention and control and the enabling environment resulting from the Roll Back Malaria initiative and the political commitment made by the African Presidents at the Abuja Summit, there are still no significant initiatives for strengthening capacity for malaria control through training within the African continent itself. Institutionalized malaria training in Africa is long overdue and insofar as this gap is not filled, malaria control capacities cannot be developed in a sustainable manner.

The need for reducing the burden of malaria in Africa is urgent and has been given high political support by African heads of states at the Abuja Summit in April 2000. The commitments made at the Abuja Summit and the Roll Back Malaria target aimed at halving the malaria burden have rejuvenated the global and regional efforts for malaria control. However, the targets will not be met until governments honor their pledges, sufficient funds are generated at global level, and malaria control activities at district, country, and regional levels are strengthened sufficiently to be able to implement effective malaria control interventions. It is felt that Africa has for far too long been dependent on training offered outside the continent, when ideally there is no better place for malaria training than in Africa itself, where the problem is critical. Courses offered outside should only be complementary to the basic courses conducted in Africa, but should target skills not possible to be learned within Africa due to either lack of expertise or technology.

Additionally, it would serve a useful and justifiable purpose to establish and conduct training activities in areas where malaria is endemic. Without Africa's strong involvement in

developing and applying effective strategies for malaria control, the huge burden of malaria borne by Africa will not be reduced considerably. It is not understandable why Africa has so far failed to establish even a single malaria training school. The courses, which will be offered at the new Malaria Training Centers, will be designed to be sufficiently focused to provide the needed impact. This center and those in the network will therefore be critical for malaria prevention and control at the level of each partner country and the African region as a whole. It is in an endeavor to satisfy the above requirement that the CEEMI was established in Tanzania. Similar centers have been established in Ghana, Malawi, and The Gambia. Although training of health personnel in malaria prevention and control, advocacy, and sensitization are the main focus of these centers, each has its own unique way of delivering and implementing its activities.

A detailed description of the Tanzanian center has been provided here to highlight its uniqueness and the innovative training approaches, which are expected to be applied to ensure that capacities for malaria prevention and control are effectively enhanced. The vision of the center is to develop and promote excellence in the effective application of current malaria prevention and control knowledge and tools for the purpose of reducing and eventually eliminating the burden of malaria disease at district, national and regional levels.

The center's approach has been defined from positive critical observations of the current training activities for malaria control in the country and by asking the question "Why are we not registering a measurable impact of National Malaria Control, when training has been ongoing for decades, and while there are trained workers for malaria control in every district?" Time is ripe for significant changes in the entire delivery mechanism of our training programs. Monitoring and evaluation has to become an integral part of the whole process of training, so that we may be able to measure impact and make amendments whenever it is necessary, and in a continuous manner. This system provides continuous feedback to both the trainer and the trainee, which is important for continuity and for motivating the trainee.

The nature of the training will be demand driven and result oriented in relation to the objectives of the Roll Back Malaria initiative and the priorities of the NMCP and the districts or region from where the potential candidates are recruited. However, the initial modules are expected to target implementers and leaders or managers involved in malaria prevention and control activities. One of these training programs being developed is the training of council malaria focal persons. This is deemed necessary to meet targets of the Abuja declaration. The above training will go hand in hand with sensitization and advocacy campaigns, which have already been initiated by CEEMI and its partners.

Delivery of training will involve co-opting of trainers from other partner institutions of CEEMI depending on the needs of a particular course or training module. It therefore requires maintenance of a constantly updated inventory of capacities in the different local and regional institutions. This process is already in progress.

This approach is believed to be efficient and less costly to sustain because the trainers are used permanently elsewhere. However, the drawback is that such trainers may not always be available and proper timing will be needed to have them onboard. Careful analysis has to be done to determine the

minimum essential capacity that the center will require on permanent employment basis to meet its obligations and the expectations of stakeholders.

In a recent workshop on malaria and the media⁸ organized by CEEMI and her northern partners and with significant input from local media institutions (both public and private), participants received training not only in malaria prevention and control, but also in certain areas of their profession. For example, code of ethics, information retrieval using the internet, etc., and an e-mail discussion group was set up to enable them to network among themselves and also with malaria experts through the CEEMI and the Liverpool School of Tropical Medicine. This network and e-mail discussion group is still in place. After the workshop, some of the trainees were awarded fellowships to attend the Third Multilateral Initiative on Malaria conference in Arusha, Tanzania, and plans are underway to set up a health communication course at the Tanzania School of Journalism, which is one of the constituent colleges of the University of Dar es Salaam. This has proved to be a big incentive for the participants of the workshop and provides good back up for disseminating information and for promoting the activities of the CEEMI.

The close collaboration between CEEMI and the NMCP serves to facilitate the use of research to reform policies and to create demand for research from policy, i.e., a two-way traffic of information. This interaction between researchers and malaria control program implementers will bring about constant exchange of ideas and knowledge.

It is our conviction that by adopting the training approach advocated here measurable results will soon become evident, and that the training center will therefore achieve its objective of providing support for effective malaria control at district, national, and regional levels, and to gain stature and provide support as a regional capacity for malaria control.

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